Application No. 10/693,962

**IN THE CLAIMS:**

Please cancel claims 1-16 without prejudice to or disclaimer of the subject matter recited therein.

Please add new claims 17-36 as follows:

## LISTING OF CURRENT CLAIMS

Claims 1-16. (Canceled)

17. (New) A phase lock loop for receiving a baseband signal having an input frequency and modulating the baseband signal to be a corresponding RF signal for transmitting, the phase lock loop comprising:

a frequency synthesizer for generating a local oscillating signal having a local oscillating frequency;

a first programmable divider for dividing the frequency of the local oscillating signal by a first programmable divisor to generate a reference signal;

a modulator for modulating the reference signal according to the baseband signal to generate a first comparison signal;

a phase detector for generating a phase difference signal for representing the phase difference between the first comparison signal and a second comparison signal;

a charging pump for receiving the phase difference signal and accordingly outputting a control current;

a loop filter for filtering the control current to output a control voltage;

an oscillating signal generator for generating the corresponding RF signal having a frequency in responsive to the control voltage, the RF signal being fed back as a feedback signal; and

a frequency converter for receiving the feedback signal and the local oscillating signal to output the second comparison signal to the phase detector in responsive to the frequency difference between the feedback signal and the local oscillating signal;

wherein provided that a carrier frequency of the RF signal substantially equals to a predetermined value, the first programmable divisor of the first programmable divider as well as the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled.

18. (New) The phase lock loop of claim 17, wherein the phase lock loop further comprises a phase shift generator coupling between the first programmable divider and the modulator, for shifting the phase of the reference signal of the first programmable divider by 90 degrees, and then inputting the phase-shifted reference signal into the modulator.

19. (New) The phase lock loop of claim 17, wherein the phase lock loop further comprises a second programmable divider coupled between the frequency synthesizer and the frequency converter, for dividing the frequency of the local oscillating signal by a second programmable divisor and outputting a divided local oscillating signal to the frequency converter.

20. (New) The phase lock loop of claim 19, wherein provided that the carrier frequency of the RF signal substantially equals to a predetermined value, the first programmable divisor of the first programmable divider as well as the corresponding second programmable divisor of the second programmable divider and the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled.

21. (New) The phase lock loop of claim 19, wherein, the phase lock loop further comprises a phase shift generator coupling between the first programmable divider and the modulator, for shifting the phase of the reference signal of the first programmable divider by 90 degrees, and then inputting the phase-shifted reference signal into the modulator.

22. (New) The phase lock loop of claim 21, wherein, the phase lock loop further includes a first filter to filter the signal from the second programmable divider,

a second filter to filter the signal leaving the frequency converter, a third filter to filter the signal from the first programmable divider, and a fourth filter to filter the modulated signal from the modulator.

23. (New) The phase lock loop of claim 19, wherein the transmission frequency of the RF signal is $F_{tx}$, the local oscillating frequency of the local oscillating signal is $F_{LO}$, the first programmable divisor of the first programmable divider is M, the second programmable divisor of the second programmable divider is N, and $F_{tx}$, $F_{LO}$, M, and N satisfy the following equation:

$$F_{tx} = \left(\frac{M \pm N}{M \times N}\right) \times F_{LO}$$

24. (New) The phase lock loop of claim 17, wherein the phase lock loop is utilized in an RF signal transmission device of a wireless communication system.

25. (New) The phase lock loop of claim 17, wherein the phase lock loop merely comprises the only frequency synthesizer to generate the single local oscillating frequency of the local oscillating signal.

26. (New) The phase lock loop of claim 17, wherein the oscillating signal generator comprises a voltage-controlled oscillator.

27. (New) The phase lock loop of claim 17, wherein the oscillating signal generator comprises a voltage-controlled oscillator and a third frequency divider coupled to an output of the voltage-controlled oscillator.

28. (New) A method for generating an RF signal by utilizing a phase lock loop to receive a baseband signal having an input frequency and to modulate the baseband signal to be a corresponding RF signal for transmitting, the method comprising the steps of:

generating a local oscillating signal having a local oscillating frequency, and dividing the frequency of the local oscillating signal by a first programmable divisor to generate a reference signal;

modulating the reference signal according to the baseband signal to generate a first comparison signal;

generating a phase difference signal for representing the phase difference between the first comparison signal and a second comparison signal;

receiving the phase difference signal to generate a control current, and filtering the control current to output a control voltage; and

generating the corresponding RF signal having a frequency in response to the control voltage, the RF signal being fed back as a feedback signal, and generating the second comparison signal according to the frequency difference between the feedback signal and the local oscillating signal;

wherein provided that a carrier frequency of the RF signal substantially equals to a predetermined value, the first programmable divisor as well as the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled.

29. (New) The method of claim 28, wherein the phase of the reference signal needs to be shifted by 90 degrees first, and then be modulated by the baseband signal.

30. (New) The method of claim 28, wherein the frequency of the local oscillating signal is divided by a second programmable divisor, and then a divided local oscillating signal is generated.

31. (New) The method of claim 30, wherein provided that the carrier frequency of the RF signal substantially equals to a predetermined value, the first programmable divisor as well as the corresponding second programmable divisor and the corresponding local oscillating frequency of the local oscillating signal are capable of being programmable-controlled.

32. (New) The method of claim 30, wherein the phase of the reference signal needs to be shifted by 90 degrees first, and then to be modulated by the baseband signal.

33. (New) The method of claim 30, wherein the transmission frequency of the RF signal is $F_{tx}$, the local oscillating frequency of the local oscillating signal is $F_{LO}$, the first programmable divisor is M, the second programmable divisor is N, $F_{tx}$ and $F_{LO}$ satisfy the following equation:

$$F_{tx} = \left(\frac{M \pm N}{M \times N}\right) \times F_{LO}$$

34. (New) The method of claim 28, wherein the method is applied in an RF signal transmission device of a wireless communication system.

35. (New) The method of claim 28, wherein the method merely utilizes a frequency synthesizer to generate the local oscillating signal.

36. (New) The method of claim 28, wherein at least one filter is employed to filter the signals in the phase lock loop.